List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 -15 (Cancelled).

16. (Previously presented) A method for monitoring the functioning of a sensor which measures and monitors a state parameter of liquids or gases, comprising the steps of:

placing the sensor in a test state at time intervals;

registering test parameters at time intervals or at time intervals during the course of registering measured values;

storing the registered test parameters;

evaluating a backward-looking chronological development of the stored test parameters in order to perform functional monitoring by using an non-linear interpolation method for evaluating the historical development over time of the stored test parameters in order to obtain function parameters of a function describing the sensor behavior;

predicting from said evaluations the development of sensor behavior to be expected in the future; and

obtaining thereby information concerning the duration of the remaining disturbance-free operation of the sensor.

Claim 17 (Cancelled).

18. (Currently Amended)   The method as defined in claim 16, wherein:

a function is specified and used for a particular sensor of said at least one of the sensors sensor, which reproduces the experience-based behavior of the particular sensor.

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19. (Previously presented) The method as defined in claim 18, wherein: the function involves a polynomial function.

Claim 20 (Cancelled).

21. (Currently Amended) The method as defined in claim 16, further comprising the step of:

testing whether the wear limit of the sensor will be reached before the next registering of test parameters and correspondingly issuing a corresponding warning or correspondingly initiating automatic ~~changing~~ cleaning measures.

Claim 22 (Cancelled).

23. (Previously presented) The method as defined in claim 16, further comprising the step of:

determining and issuing displaying or initiating measures for maintenance on the basis of the information concerning the duration of the remaining, disturbance-free operation.

Claim 24 (Cancelled).

25. (Previously presented) The method as defined in claim 16, wherein: as a test parameter, the slope of the sensor signal, or signals is registered and evaluated.

26. (Previously presented) The method as defined in claim 16, wherein: as a test parameter, the zero point of the sensor signal, or signals is registered and evaluated.

27. (Previously presented) The method as defined in claim 16, wherein:

as a test parameter, the internal resistance of an electrode is registered and evaluated.

28. (Previously presented) The method as defined in claim 16, wherein:

as a test parameter, the change of the dynamic behavior of signals produced by the sensor itself is registered and evaluated.

29. (Previously presented) The method as defined in claim 16, wherein:

a plurality of different test parameters are registered and evaluated.

30. (Previously presented) The method as defined in claim 16, further comprising the step of:

obtaining a sensor specific, basic data from a storage arrangement of the sensor or the measured value transmitter over the internet or over update media, for the evaluation.

31. (Currently Amended) The method as defined in claim 16, comprising a further step of:

determining and issuing or displaying a predictive point in time for replacement of the sensor, of a sensor liquid, or of wear parts of the sensor.

32. (Previously presented) The method as defined in claim 25, wherein:

the sensor is a pH-sensor and the test parameter is the slope of the measurement chain voltage.

33. (Previously presented) The method as defined in claim 25, wherein:

the slope of the sensor signal or signals is registered during interruption of measurement operation of the sensor during a calibration process.

34. (Previously presented) The method as defined in claim 26, wherein:

the zero point of the sensor signal, or signals is registered during interruption of measurement operation of the sensor during a calibration process.

35. (Previously presented) The method as defined in claim 27, wherein:

said electrode is a glass electrode or a reference electrode.

36. (Previously presented) A measuring setup, comprising:

a sensor adapted to measure and monitor state parameters of liquids or gases, the sensor comprising a signal output;

a calculating and storage unit, adapted to receive signals from said sensor; and

a display and operating unit connected to the calculating and storage unit; wherein

said measuring setup is adapted to:

register and store test parameters at time intervals;

evaluating a backward-looking chronological development of the stored test parameters in order to perform functional monitoring by using a non-linear interpolation method for evaluating the historical development over time of the stored test parameters in order to obtain function parameters of a function describing the sensor behavior;

predicting from said evaluations the development of the sensor behavior to be expected in the future, and obtaining thereby information concerning the duration of the remaining disturbance-free operation of said sensor; and

determining a predictive point in time for replacement of the sensor.

37. (New) The measuring setup as defined in claim 36, wherein:

the measuring setup is further adapted to testing whether the wear limit of the sensor will be reached before the next registering of test parameters and correspondingly issuing a corres-ponding warning or correspondingly initiating

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automatic cleaning measures.

38.   (New) The measuring setup as defined in claim 36, wherein:

the measuring setup is adapted to determining and issuing or displaying a predictive point in time for replacement of the sensor, of a sensor liquid, or of wear parts of the sensor.

39.   (New) The method as defined in claim 16, wherein:

at least one or several of said steps are performed in a measuring setup comprising a sensor, a calculating and storage unit and a display and operating unit.

40. (New) A method for monitoring the functioning of a sensor which measures and monitors a state parameter of liquids or gases, comprising the steps of:

placing the sensor in a test state at time intervals;
registering test parameters at time intervals or at time intervals during the course of registering measured values;

storing the registered test parameters;

evaluating a backward-looking chronological development of the stored test parameters in order to perform functional monitoring by using a non-linear interpolation method for evaluating the historical development over time of the stored test parameters in order to obtain function parameters of a function describing the sensor behavior;

predicting from said evaluations the development of sensor behavior to be expected in the future; and

obtaining thereby information concerning the duration of the remaining disturbance-free operation of the sensor, based on said information determining and issuing or displaying a predictive point in time for replacement of the sensor, a sensor liquid, or of wear parts of the sensor.

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41. (New) The method as defined in claim 40, wherein:

at least one or several of said steps are performed in a measuring setup comprising a sensor, a calculating and storage unit and a display and operating unit.

42. (New) The method as defined in claim 40, wherein:

the sensor is a pH-sensor and the test parameter is the slope of the measurement chain voltage.

43. (New) The method as defined in claim 40, wherein:

as a test parameter the zero point of the sensor signal, or signals is registered and evaluated.

44. (New) The method as defined in claim 40, wherein:

as a test parameter, the internal resistance of an electrode is registered and evaluated.

45. (New) The method as defined in claim 40, wherein:

as a test parameter, the change of the dynamic behavior of signals produced by the sensor itself is registered and evaluated.